

REMARKS/ARGUMENTS

By Office action dated October 3, 2005, the Examiner has rejected claims 1-14 under 35 U.S.C. §103(a). In response, the applicants have amended each independent claim of the application. In particular, the independent claims have been amended to clarify that the input section effectively performs a sampling process to produce a sequence of samples which represent the amplitudes of the converted radio frequency signal at a sequence of sampling times. In the case where the samples are digital, the sampling is performed, generally, as part of the analog/digital conversion process, as is well known.

The Examiner cites US 6,426,983 (Rakib) as relevant to the patentability of the claims. Rakib discloses a technique for removing interference in a broadband digital data communication system. According to this technique, the received signal is frequency-divided into a plurality of narrow sub-bands. Thus, the signal is divided in the frequency domain into bands which cover narrow frequency ranges and which are contiguous so as to span the whole of the frequency range of the signal. The signal in each narrow sub-band is then examined to determine the presence of interference in the frequency range covered by the sub-band. The average power of the signal in the narrow frequency range of the sub-band is determined and compared with a threshold. If the threshold is exceeded, then the signal in the sub-band is muted. Thus, Rakib is attempting to detect and eliminate interference in one or more narrow frequency bands with all such processing being performed effectively in the frequency domain. The non-muted signals in the various sub-bands are then recombined to provide a processed signal in which narrow frequency band interference has been reduced or eliminated.

The present invention effectively performs all processing in the amplitude domain. The converted radio frequency signal is in the form of the well-known sequence of amplitude samples, for example provided by the conventional sampling process in known types of analog/digital converters. In particular, the incoming signal is sampled in time and the amplitude of the signal at each sampling point in time is the amplitude of the sample. This mechanism is entirely different from that disclosed by Rakib. Further, the technique defined in the independent

claims is specifically intended to reduce the effects of impulsive noise, as described in detail throughout the application. This is a totally different problem from reducing the effects of interference in narrow frequency bands and different techniques are required.

The present invention as defined in the independent claims derives a threshold from the samples, such as a moving average threshold, but with samples which are found to exceed the threshold being eliminated from the averaging process. The threshold generated from the average is used for comparison with the amplitude of the amplitude samples and those amplitude samples which exceed the threshold are set to zero as well as being excluded from the threshold generation process. None of these features is disclosed or suggested by Rakib.

The Examiner also refers the applicants to US 6,259,752 (Domino). Domino is concerned with the interference generated inside a mobile telephone and is not concerned with received interference. When the mobile telephone is in the receive mode, there is a brief silent period between active channels. The arrangement disclosed by Domino measures the output level during such silent periods from a double-conversion tuner and then subtracts this from the level obtained during a subsequent received channel. A running average of the "bias" value is created for each tuned frequency to allow noise reduction for each corresponding channel to be appropriate for that channel. There is a suggestion of eliminating relatively high values from the running averages as these are assumed to correspond to high external interference sources.

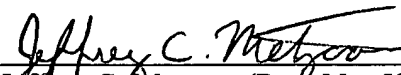
Although Rakib and Domino are both concerned with mobile telephone technology, the arrangements which they disclose relate to very different aspects of such technology, to the point where Rakib and Domino cannot be said to be dealing with "analogous arts". The applicants would therefore suggest that it is inappropriate to combine these two disclosures. However, even if such a combination is performed, claim 1 contains features which are not disclosed in either Rakib or Domino, as described above.

The applicants also note that the Examiner considers US 6,407,634 (Staudinger) to be relevant to the patentability of claim 5. Staudinger discloses a linear radio frequency power

amplifier for a mobile telephone. An error signal is provided to control a modulator so as to control the voltage supply to the linear amplifier. This is used to minimise power consumption while ensuring adequate performance. The error signal is based on the assumption that the peak-to-average of the linear amplifier output signal provides a measure of distortion within the linear amplifier. By adjusting the power supply via the modulator, an acceptance ratio is achieved and this is assumed to indicate an acceptable distortion performance.

Claim 5 of the present application defines the threshold as being greater than the product of the average formed in the threshold generator and a peak-to-average ratio of the amplitude samples. Staudinger is not concerned with providing a threshold and is not concerned with reducing impulsive noise. In fact, Staudinger is dealing with a mechanism which is so far removed from the present invention that the disclosure of Staudinger is not relevant. For example, the performance of a liner amplifier in the transmitter section of a mobile ("cellular") telephone is of no relevance whatever to the reduction of impulsive noise in a received signal. The applicants cannot therefore see how Staudinger can be used to challenge the patentability of claim 5, which would therefore appear to be clearly patentable.

Respectfully submitted,


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